UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,007	07/15/2003	Scott Davis	944-015.002	9112

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EXAMINER
HAN, QI

ART UNIT	PAPER NUMBER
2626	

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03/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2007*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-21* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114.

Response to Amendment

3.   This communication is responsive to the applicant's amendment and RCE both filed on

12/13/2007. The applicant(s) amended claims 1-3, 17 and 21 (see the amendment).

Response to Arguments

4.   Applicant's arguments filed on 03/07/2006 with respect to the rejection of claims 1-16

under 35 USC 102 and/or 103 (see the section of Remarks in the amendment), have been fully

considered but are moot in view of the new ground(s) of rejection (see below), since the

amended claims introduce new issue that changes the scope of the claims.

Claim Rejections - 35 USC § 103

5.   Claims 1-3, 1-13 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over CHUA (US 2004/0183833 A1) in view of AUSEMS et al. (US 2003/0013483 A1)

hereinafter referenced as AUSEMS.

As per **claim 1**, CHUA discloses 'keyboard error reduction method and apparatus' (title)

for 'small portable devices, such as mobile telephones, personal digital assistants (PDA)'

adopting 'various method for entering symbols or data into them', comprising:

"an input component configured to receive a [analog] user input to be recognized" (p2,

'such screens are not just used… to display data to user, but also as means (input component) for

the user to input (receive) data');

"a recognition component configured to analyze the [analog] user input and identify a

subset of virtual key of a plurality of available virtual keys to concurrently convey to a user

during the [analog] user input", (p3, 'voice recognition', 'hand writing recognition' (recognition

component); p7, 'receiving input data identifying the selected position, indicated during the

selection operation, and deciding on at least one candidate of the selected position relative to the

representative position of a second plurality of the selectable portions (corresponding to a

plurality of available virtual keys'; p17, 'mobile telephone with virtual keyboard and a touch

screen', 'virtual keys', 'these candidate keys are then used to provide a set of potential words that

would result from the input of any one of those keys'; p21-p23 and Fig. 1, 'the user touches one

of the words (corresponding virtual keys) in the list display area 26 and the selected word then

appears in the message line 24'; also see p25, 31 and p34-p37);

"a rendering component configured to display the subset of virtual keys to the user concurrently with receiving the [analog] user input", (p21-p23, 'the user touches one of the words (subset of virtual keys) in the list display area 26 and the selected word (receiving the user input) then appears (display) in the message line 24').

CHUA does not expressly disclose the user input being "analog". However, the feature is well known in the art as evidenced by AUSEMS who discloses 'user interface for handheld communication device' (title), comprising 'PAD telephone 100' including 'a stylus 118', and 'display 106' that may uses 'touch screen', 'may be configured to recognize handwriting written (corresponding analog user input) on display' (Fig. 1 and p(paragraph)37), and 'PDA telephone 100 also includes …voice/speech recognition module 152' to 'recognized and carry out voice command (also corresponding analog user input)' (p52-p54). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the recognized handwriting or speech command would be in a text form that would be then processed in the same way as the text entered by typing or keying, and modify CHUA by providing analog user input recognized by handwriting recognition and/or speech recognition systems/modules, as taught by AUSEMS, for the purpose (motivation) of offering improved user interface (AUSEMS: p13).

In addition, in another view of CHUA's disclosure, it is noted that CHUA teaches well known 'screen devices' used in 'small portable devices, such as mobile telephones, personal digital assistants', which 'adopt various methods for entering symbols or data' including 'voice recognition, hand writing recognition(,)virtual buttons' [p3]. One of skill in the art would have readily recognized that the voice recognition and/or hand writing recognition necessarily or

inherently include analog user input and the recognized result being text would necessarily or

inherently be further processed in the same way as the text entered by typing or keying. In

another words, based on broadest reasonable interpretations of the claim, the teachings by

CHUA alone would satisfy the claimed limitations for the rejection.

As per **claim 2** (depending on claim 1), CHUA in view AUSEMS further discloses "the

input entry being voice" (CHUA: p3, 'various method for entering symbols or data into

them…voice recognition'; AUSEMS: p52-p54).

As per **claim 3** (depending on claim 1), CHUA in view AUSEMS further discloses "the

input entry being handwriting" (CHUA: p3, 'various method for entering symbols or data into

them…hand writing recognition'; AUSEMS: p37).

As per **claim 10** (depending on claim 1), CHUA in view AUSEMS further discloses

"displaying N virtual keys, N being an integer, and N being a function of confidence associated

with the analysis" (CHUA: p81-105, 'the top six (N=6) scoring Wfreq (corresponding to

function of confidence associated with the analysis) words for any possibility are chosen', 'the

list… containing the top six candidate strings in score order', 'this list of words is then

displayed').

As per **claim 11** (depending on claim 10), CHUA in view AUSEMS further discloses

"the virtual keys being dynamically determined and/or inferred" (CHUA: Fig. 1 and p81-105,

wherein the content of the list display area 26 is changed based on input data, so as being

dynamically determined and/or inferred as claimed).

As per **claim 12**, it recites a portable communication device. The rejection is based on

the same reason described for claim 1, because the claim recites the same or similar limitation(s)

as claim 1, wherein the mobile telephone disclosed by CHUA is read on the claimed portable communication device.

As per **claim 13**, it recites a portable computing device. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1, wherein the PDA disclosed by CHUA is read on the claimed portable computing device.

As per **claim 17**, it recites a portable computing device recognition method. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

As per **claim 18** (depending on claim 17), the rejection is based on the same reason described for claim 3, because the claim recites the same or similar limitation(s) as claim 3.

As per **claim 19** (depending on claim 17), the rejection is based on the same reason described for claims 10-11, because the claim recites the same or similar limitation(s) as claims 10-11.

As per **claim 20**, it recites a computer readable medium having stored computer executable instructions. The rejection is based on the same reason described for claim 17, because the claim recites the same or similar limitation(s) as claim 17.

As per **claim 21**, it recites portable computing device recognition system. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

6.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHUA in view

AUSEMS as applied to claim 1, and further in view of LEWIS et al. (US 6,826,306) hereinafter

referenced as LEWIS.

As per **claim 4** (depending on claim 1), CHUA in view AUSEMS does not expressly

disclose "a data store having stored thereon a plurality of user **profiles** that the recognition

component employs in connection with the analysis". However, the feature is well known in the

art as evidenced by LEWIS who discloses 'system and method for automatic quality assurance of

user enrollment in a recognition system' (title), comprising 'conventional recognition system

(e.g. handwriting and speech)' including 'memory 14 for storing text data and enrollment data

(which is collected and stored for one or more users)' that 'is utilized during user enrollment to

train user-dependent prototypes 22 (statistical model) …for a given data recognition system'

(col. 3, lines 14-53), and allowing 'a user to create a "user profile" during the initial phase of

user enrollment…' and 'user profile …determined to be specific to the user and automatically

applied by the recognition engine …', (col. 5, lines 19-32), which suggests that one or more

users can be enrolled in the recognition system and each user can have his own user profile, as

claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify CHUA in view AUSEMS by providing a mechanism for storing

user profiles for a recognition system, as taught by LEWIS, for the purpose (motivation) of

providing automatic quality assurance of a user enrollment in a recognition system (LEWIS: col.

2, lines 27-28).

7.   Claims 5-6, 8-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

CHUA in view AUSEMS as applied to claim 1 in view of LYON (US 6,480,621).

As per **claim 5** (depending on claim 1), CHUA in view AUSEMS does not expressly

disclose "the recognition component utilizing an artificial intelligence component providing

inference of possible real-time input entry". However, the feature is well known in the art as

evidenced by LYON who discloses 'statistical classifier with reduced weight memory

requirements' (title), and teaches that 'adaptive statistical classifiers are used for applications

such as speech recognition, handwriting recognition and optical character recognition', 'in a

handwriting recognition system, the input unit 12 can be any conventional device for capturing

handwriting text such as optical character recognition (OCR) device or a digital tablet', 'in

addition, for speech recognition, the input unit 12 may be a microphone' (col. 1, lines 30-33),

including 'run-time (real time) operation of the classifier' using 'neural networks, Bayesian a

posteriori probabilities, and pattern classification' and 'hybrid HMM/connectionist approach'

(corresponding to artificial intelligence providing inference) (col. 2, lines 44-62), and providing

'real time recognition of handwriting' having 'training a mode to tune the operation of the

classifier for a particular user' (col. 15, lines 10-12). Therefore, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to modify CHUA in view

AUSEMS by providing real time recognition for handwriting and/or speech with artificial

intelligence approach, as taught by LYON, for the purpose (motivation) of reducing error for

classifier outputs and/or improving recognition results (LYON: col. 3, lines 49-67).

As per **claim 6** (depending on claim 5), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 6.

As per **claim 8** (depending on claim 5), CHUA in view AUSEMS and LYON further discloses "the recognition component utilizing a starting point of the real-time input entry for determination and/or inference", (CHUA: Fig. 2 and p22, 'touch screen circuit 30' with 'horizontal and vertical sensors' that 'are arranged to detect the point of contact, the selected position, of a touch on the tough screen', which necessarily and/or inherently includes starting point and/or end point for the input, as claimed).

As per **claim 9** (depending on claim 5), the rejection is based on the same reason described for claim 8, because the rejection for claim 8 covers the same or similar limitation(s) as claim 9.

As per **claim 14** (depending on claim 1), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 14.

As per **claim 15** (depending on claim 1), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 15.

As per **claim 16** (depending on claim 15), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 16.

8.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHUA in view

AUSEMS and LYON as applied to claim 5, and further in view of LEWIS.

As per **claim 7** (depending on claim 5), even though CHUA in view AUSEMS and

LYON discloses the artificial intelligence component (as stated for claim 5, see above), CHUA

in view of LYON does not expressly disclose "contemplating and/or accounting for quality-

deterioration of the real-time input". However, the feature is well known in the art as evidenced

by LEWIS who discloses 'system and method for automatic quality assurance of user

enrollment in a recognition system' (title), comprising 'checks the quality of a new enrollment

(real time input)' (col. 2, lines 31-32), using 'conventional recognition system (e.g. handwriting

and speech)', 'for real time digitization and recognition', including processing 'handwriting

data' on 'the input device at successive points in time (which is generated with an "online"/

"dynamic" pen-based computer)' (col. 3, lines 13-49). LEWIS also discloses the enrollment

data is utilized...to train user-dependent prototypes 22 (statistical model) (col. 3, lines 50-59)

that corresponds to the artificial intelligence component, which further supports the claim

rejection. Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify CHUA in view AUSEMS and LYON by providing a

mechanism for checking quality of enrollment data by using the artificial intelligence

component (such as statistical model) for a recognition system, as taught by LEWIS, for the

purpose (motivation) of providing automatic quality assurance of a user enrollment in a

recognition system (LEWIS: col. 2, lines 27-28).

Conclusion

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examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If
attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Richemond Dorvil, can be reached on (571) 272-7602.

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        QH/qh
        February 13, 2008
        /Richemond Dorvil/
        Supervisory Patent Examiner, Art Unit 2626